



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

INVESTIGATION: EA00-020
DATE OPENED: AUG - 10 2002 DATE CLOSED: 9-OCT-02
SUBJECT: Ignition Switch Failure Resulting in Potential Loss of
Headlamp and Windshield Wiper Function
PROMPTED BY: PE00-006
PRINCIPAL INVESTIGATOR: Jeffrey Quandt

MANUFACTURER: Volkswagen of America
MODELS: Jetta and Passat
MODEL YEARS: 1996
VEHICLE POPULATION: 108,648

PROBLEM DESCRIPTION: The ignition switch may fail to return to the "RUN" position following engine start, resulting in potential loss of Power Accessory Circuit supplying headlamps and windshield wipers.

FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
COMPLAINTS:	10	28	38
CRASHES:	0	0	0
INJURIES:	0	0	0
FATALITIES:	0	0	0
OTHER:	n/a	276	276

DESCRIPTION OF OTHER: Warranty claims with indication of Power Accessory Circuit loss.

ACTION: This Engineering Analysis has been closed. Recall No. 02V-256.

Investigator:  DIV. CHF:  OFC. DIR: 

DATE: 10/8/02

DATE: 10/8/02

DATE: 10-9-02

SUMMARY: In September 10, 2002 letter, Volkswagen notified NHTSA of a defect condition in the electrical portion of the ignition switch assembly of certain model year (MY) 1996 Volkswagen Passat passenger vehicles that may result in inoperative headlamps and windshield wipers. Volkswagen will notify owners of the problem and replace the switches with modified parts in Safety Recall 92V-256. The recall involves approximately 10,450 MY 1996 Passat vehicles built between production weeks 32 and 51 in 1995.

In addition, Volkswagen will notify owners of approximately 20,000 MY 1996-97 Passat vehicles built from week 52 in 1995 through the end of MY 1997 production and approximately 84,500 MY 1996-97 Jetta vehicles built from week 41 in 1995 through week 45 in 1996, of a Warranty Adjustment Policy covering the subject ignition system components. These vehicles, which experienced the alleged defect at significantly lower frequencies than the recalled population, will have the warranty coverage on the subject components adjusted from 2-years/24,000 miles to 8-years/100,000 miles.

ODI believes that Volkswagen's actions provide appropriate resolutions for the alleged defect in the affected vehicle populations based on available information. ODI will continue to monitor ignition switch performance in other Volkswagen vehicles equipped with similar components for evidence of the alleged defect. The agency reserves the right to take further action if warranted by the circumstances.

VPJ
11/9/02

ENGINEERING ANALYSIS CLOSING REPORT

SUBJECT: Ignition switch failure resulting in potential loss of headlamp and windshield wiper function.

EA No: EA00-020

Date Opened: 10-Aug-00

Date Closed: -Oct-02

SUBJECT VEHICLES: Model year (MY) 1996 Volkswagen (VW) Jetta and Passat passenger vehicles.

BASIS: On February 2, 2000, the Office of Defects Investigation (ODI) opened Preliminary Evaluation PE00-006 to investigate four complaints alleging loss of headlamp or windshield wiper function in MY 1996 VW Jetta and Passat passenger vehicles. The investigation was upgraded to an Engineering Analysis on August 10, 2000, based on 15 complaints and preliminary indications from VW of high warranty claim rates on the subject components.

ALLEGED DEFECT: The ignition switch may fail to return to the "RUN" position after engine start, resulting in potential loss of the Power Accessory Circuit that includes the headlamps and windshield wipers.

DESCRIPTION OF COMPONENT/VEHICLE SYSTEM: The subject components include the ignition switch, the ignition lock cylinder, and the switch cylinder housing (Figure 1).

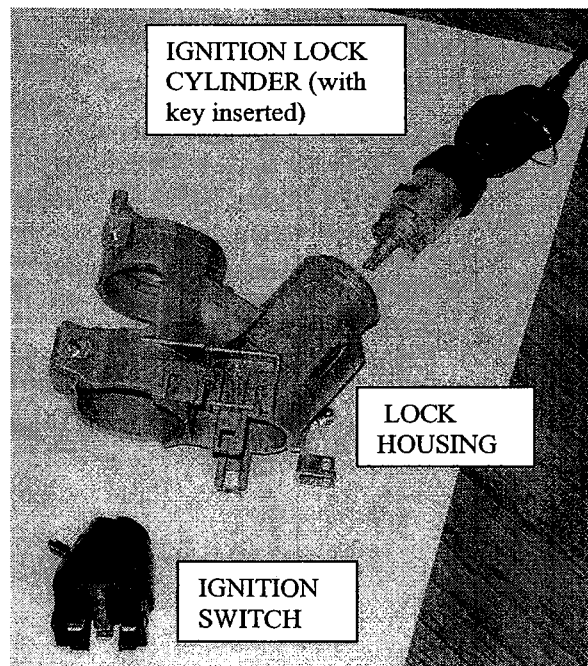


FIGURE 1. Subject Components.

MY 1996 VW Jetta/Passat Ignition Switch

When the ignition switch is turned to the "START" position by turning the key in the lock cylinder, power is interrupted to the Power Accessory Circuit which includes the headlamps, windshield wipers, air-conditioning system, and day-time running lights (where applicable). When the key is released, a spring in the ignition switch returns the switch, lock cylinder, and key to the "RUN" position, returning power to the Power Accessory Circuit.

CORRESPONDENCE:

NHTSA to Mfr.	Mfr. to NHTSA	Mfr. to NHTSA Supplement	Confidentiality			
			Date Requested	Date OCC Response	Attachments Requested	Attachments Granted
17-May-00	03-Jul-00	17-Jul-00	-	-	-	-
		24-Jul-00	-	-	-	-
		09-Aug-00	-	-	-	-
		24-Aug-00	-	-	-	-
03-Apr-01	20-Jun-01	28-Jun-01	-	-	-	-
		08-Feb-02	-	-	-	-
		19-Apr-02	-	-	-	-
		10-Jun-02	-	-	-	-
		25-Jun-02	-	-	-	-
		10-Sep-02	-	-	-	-

TABLE 1. NHTSA-VW Correspondence.

VEHICLE POPULATION: VW has sold or leased approximately 108,600 subject vehicles in the United States (Table 2).

Model	Population
Jetta	88,992
Passat	19,656
Total	108,648

TABLE 2. U.S. Sales.

PROBLEM EXPERIENCE: Table 3 summarizes all known ODI and VW complaints and field reports related to the alleged defect in the subject vehicles.

	EA OPENED		EA CLOSED	
	ODI	MFR	ODI	MFR
REPORTS	4	11	10	28
CRASHES	0	0	0	0
INJURIES	0	0	0	0

TABLE 3. Problem Experience.

DESIGN/PROCESS CHANGES: Tables 4a and 4b summarize the significant design and manufacturing process/supply changes implemented by VW for ignition switch and switch cylinder parts used in the subject Passat and Jetta vehicles, with VW's reason and action.

Date	Change	Reason	VW Field Action
CW 32/95	Start of ignition switch from supplier MERIT with 2 nd spring for S-contact. VIN: TE000001/TB000001	J.D. Power Improvement	Safety Recall
CW 51/95	Start of ignition switch from supplier KOSTAL with 2 nd spring for S-contact. VIN: TE070927	J.D. Power Improvement	
CW 20/97	Base of lift bar changed, additional pocket for grease inside switch cylinder .	J.D. Power Improvement	Warranty Policy Adjustment

TABLE 4a. Passat Design/Process Changes

Date	Change	Reason	VW Field Action
20-Feb-95	VW accepted the ignition switch from supplier KOSTAL with only one spring. VIN: SM039387	J.D. Power Improvement	-
CW 41/95	Introduction of switch cylinder from supplier HUF Germany. VIN: TM037958	J.D. Power Improvement	Warranty Policy Adjustment
CW 51/95	Start of modified ignition switch with a 1 mm extension to reduce play in the cylinder. VIN: TM072787	J.D. Power Improvement	
CW 11/96	Start of B4 switch cylinder from supplier HUF Spain.	J.D. Power Improvement	
CW 45/96	Start of ignition switch from supplier MERIT with two springs. VIN: VM036652	J.D. Power Improvement	
CW 20/97	HUF Spain improves switch cylinder process CPK.	J.D. Power Improvement	-

TABLE 4b. Jetta Design/Process Changes.

VW implemented a new switch design in the Passat vehicles, beginning in MY 1998.

PART SALES: Figure 2 shows the trend in sales of the subject ignition switch and its successor in the period from May 1997 through April 2001. The data show high sales volumes with a seasonal pattern that peaks in summer months. VW noted that the subject switches are used as service replacement parts in almost 800 thousand VW vehicles.

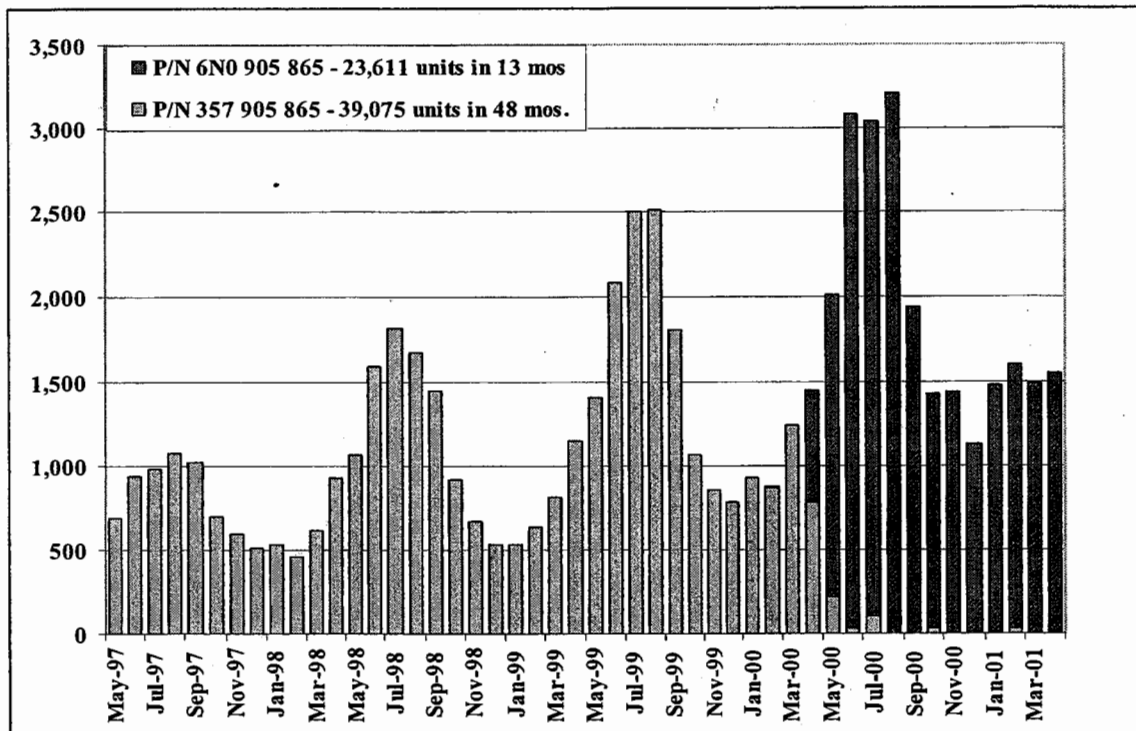


FIGURE 2. Ignition Switch Sales Trends by Calendar Month,
48-Month Period From May-97 to Apr-01.

SERVICE BULLETINS: VW has not issued any dealer communications concerning the alleged defect in the subject vehicles. However, in August 1995, VW issued a technical service bulletin (# 95-07) relating to intermittent operation of the power accessory circuit in MY 1993-95 Passat vehicles. According to VW's bulletin:

Intermittent loss of the power accessory circuit (X-circuit) can be caused by the ignition switch/lock not returning fully to the "RUN" position after the engine starts. An ignition switch that binds or does not return smoothly from the "START" position can be caused by the following:

- Shift lock III cable mis-adjustment.
- Ignition switch and/or ignition lock binding.
- Burrs on Ignition key or duplicate keys.
- Duplicate keys that are improperly cut.

The repair procedure for TSB # 95-07 is summarized in Table 5.

Date	Vehicles	Subject	Repair Procedure
24-Aug-95	MY93-95 Passat	Ignition switch binding	<p>Check ignition switch for smooth return from "START" position to "RUN" position. If switch binds and/or key does not return fully to the "RUN" position:</p> <ul style="list-style-type: none"> - Check ignition key and duplicates for burrs and remove as necessary. - Adjust shift lock III cable. - Check ignition switch function and replace as necessary. - Check ignition lock function and replace as necessary.

TABLE 5. VW Technical Service Bulletin #95-07.

WARRANTY: The subject components are covered under a 2-year/24,000 mile warranty in the subject vehicles. Table 6 summarizes the warranty data for claims involving ignition switch assembly components that include information that indicates loss of the Power Accessory Circuit in all MY 1995 through 1998 Jetta and Passat vehicles equipped with the same ignition switch as the subject vehicles.

MY	Passat			Jetta		
	Volume	Claims	R/100	Volume	Claims	R/100
1995	15,718	27	0.17	79,581	33	0.04
1996	19,656	105	0.53	88,992	171	0.19
1997	11,448	34	0.30	91,820	187	0.20
1998	N/A	N/A	N/A	74,702	59	0.08
Total	52,081	195	0.37	335,095	450	0.13

TABLE 6. Warranty Claims With Indication of Loss of Power Accessory Circuit, By Model and Model Year.

VW ASSESSMENT: In a September 10, 2002 letter, Volkswagen notified NHTSA of a defect condition in the electrical portion of the ignition switch assembly of certain MY 1996 Volkswagen Passat passenger vehicles that may result in inoperative headlamps and windshield wipers. Volkswagen will notify owners of the problem and replace the subject switches (P/N 357 905 865) with modified parts (P/N 6N0 905 865) in Safety Recall 02V-256. The recall involves approximately 10,450 MY 1996 Passat vehicles built between production weeks 32 and

51 in 1995, a range where VW had identified supplier quality concerns (see DESIGN/PROCESS CHANGES).

In addition, Volkswagen will notify owners of approximately 20,000 MY 1996-97 Passat vehicles built from week 52 in 1995 through the end of MY 1997 production and approximately 84,500 MY 1996-97 Jetta vehicles built from week 41 in 1995 through week 45 in 1996, of a Warranty Adjustment Policy covering the subject ignition system components. These vehicles, which experienced the alleged defect at significantly lower frequencies than the recalled population, will have the warranty coverage on the subject components adjusted from 2-years/24,000 miles to 8-years/100,000 miles.

ODI ANALYSIS: To assess the risk associated with the alleged defect in the subject vehicles, ODI analyzed complaint, warranty, and part sales data and reviewed design/process change and other technical information submitted by VW. ODI's analysis found that there was sufficient basis for providing recall remedy to the approximately 20 weeks production of MY 1996 Passat vehicles covered by VW's campaign.

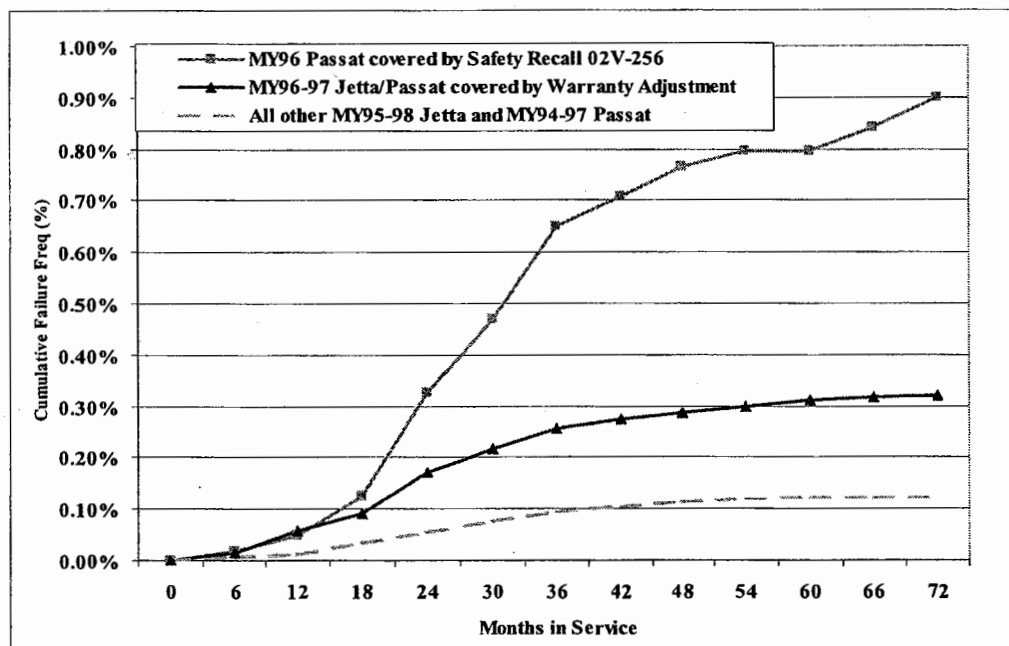


FIGURE 3. Cumulative Failure Frequencies of: (1) Recalled MY96 Passat; (2) MY96-97 Jetta/Passat Receiving Warranty Adjustment; and (3) Remaining MY95-98 Jetta and MY94-97 Passat Vehicles.

1. The reported failure data of the recalled Passat vehicles yields a failure rate that is approximately triple that of the vehicles receiving adjusted warranty coverage from VW and almost an order of magnitude greater than the remaining Jetta and Passat vehicles for which ODI collected data from VW during this investigation (Figure 3). The recalled vehicles also

MY 1996 VW Jetta/Passat Ignition Switch

show evidence of continuing failures over the last 12-months, while the other vehicles do not.

2. There have been no allegations of crashes or injuries resulting from the alleged defect in the subject vehicles.
3. ODI considers defect conditions involving the potential for loss of headlamps or windshield wipers as serious safety concerns. The reported failure frequency of the recalled MY 1996 Passat vehicles is within the range that has warranted recall remedy in prior ODI investigations involving potential loss of headlamps or windshield wipers.

REASON FOR CLOSING: ODI believes that Volkswagen's actions provide appropriate resolutions for the alleged defect in the affected vehicle populations based on available information. ODI will continue to monitor ignition switch performance in other Volkswagen vehicles equipped with similar components for evidence of the alleged defect. The agency reserves the right to take further action if warranted by the circumstances.



Safety Defects Engineer

I Concur:



Chief, Vehicle Control Division



Director, Office of Defects Investigation

10/8/02
Date

10/8/02
Date

10-8-02
Date